CLAIMS

1. An information-signal process apparatus comprising:

characteristic information detection means for detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

classification process means for classifying segments of said first information signal into segments exhibiting similarity of said characteristics on the basis of a detection result produced by said characteristic information detection means;

information-signal generation means for generating a second information signal having an associative relation with said first information signal for said each predetermined processing unit of said first information signal;

identification information creation means for creating information on identifications each used for identifying said second information signal to be used in a tabular display and identifying a display position of said second information signal for each of said classified segments on the basis of a classification result produced by said classification process means; and

recording means for recording said first information signal, said second information signal and said information on identifications onto a recording medium.

2. An information-signal process apparatus comprising:

characteristic information detection means for detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

classification process means for classifying segments of said first information signal into segments exhibiting similarity of said characteristics on the basis of a detection result produced by said characteristic information detection means;

information-signal generation means for generating a second information signal on the basis of said first information signal of one processing unit determined on the basis of a detection result produced by said characteristic information detection means for each of said segments produced by said classification process means as a result of classification;

identification information creation means for creating information on identifications each used for

identifying a display position of said second information signal to be used in a tabular display on the basis of a classification result produced by said classification process means; and

recording means for recording said first information signal, said second information signal and said identification information signals onto a recording medium.

3. An information-signal process method comprising the steps of:

detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

classifying segments of said first information signal into segments exhibiting similarity of said characteristics on the basis of said detected information on characteristics of said first information signal;

generating a second information signal having an associative relation with said first information signal for said each predetermined processing unit of said first information signal;

creating information on identifications each used for identifying said second information signal to be used in a tabular display and identifying a display position

of said second information signal for each of said segments exhibiting similarity of said characteristics on the basis of a classification result of said segments exhibiting similarity of said characteristics; and

recording said second information signal and said identifications, in addition to said first information signal to be recorded, onto a recording medium.

4. An information-signal process method comprising the steps of:

detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

classifying segments of said first information signal into segments exhibiting similarity of said characteristics on the basis of said detected information on characteristics of said first information signal;

creating a second information signal on the basis of said first information signal of one processing unit determined on the basis of said detected information on characteristics of said first information signal for each of said segments exhibiting similarity of said classified characteristics;

creating identification information each used for identifying a display position of said second information

signal to be used in a tabular display on the basis of a classification result for each of said segments exhibiting similarity of said classified characteristics; and

recording said second information signal and said information on identifications, in addition to said first information signal to be recorded, onto a recording medium.

5. An information-signal process apparatus comprising:

characteristic information detection means for detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

identification information generation means for generating identification information for identifying a predetermined signal segment of said first information signal on the basis of a detection result produced by said characteristic information detection means; and

recording means for recording said first information signal in a first recording area of a recording medium and a second information signal in a second recording area of said recording medium wherein:

said first and second recording areas are set in

accordance with a recording method determined in advance for said recording medium; and

said second information signal is an information signal included in said first information signal as an information signal in said predetermined signal segment identified by said identification information.

6. The information-signal process apparatus according to claim 5 wherein said recording means records a plurality of said first information signals in said first recording area having a variable storage size for accommodating said first information signals as a cluster of said first information signals and a plurality of said second information signals in said second recording area having a variable storage size for accommodating said second information signals as a cluster of said second information signals.

7. The information-signal process apparatus according to claim 5 wherein said recording means provides said first recording area for recording only one piece of said first information signal and said second recording area for recording only one piece of said second information signal, and records said piece of said first information signal and said piece of said second information signal in said first and second recording

areas, respectively.

8. The information-signal process apparatus according to claim 5, said information-signal process apparatus further having selection-input reception means for receiving a selection input specifying a selected recording method, wherein said recording means:

sets said first and second recording areas in said recording medium in accordance with a selected recording method specified by a selection input received by said selection-input reception means; and

stores a first information signal in said first recording area and a second information signal in said second recording area.

9. The information-signal process apparatus according to claim 8 wherein said selected recording method can be at least:

a first recording method of recording a plurality of said first information signals in said first recording area having a variable storage size for accommodating said first information signals as a cluster of said first information signals and a plurality of said second information signals in said second recording area having a variable storage size for accommodating said second information signals as a cluster of said second

information signals; or

a second recording method of providing said first recording area for recording only one piece of said first information signal and said second recording area adjacent to said first recording area as an area for recording only one piece of said second information signal to form an alternating arrangement, and recording said piece of said first information signal and said piece of said second information signal in said first and second recording areas, respectively.

10. The information-signal process apparatus according to any one of claims 5, 6, 7, 8 and 9, further having:

storage-size detection means for detecting the storage size of a free area left in said recording medium; and

recording control means for executing control to record a most recent first information signal in a sub-area included in said first recording area as a sub-area for recording a least recent first information over said least recent first information without eroding said second recording area in case a detection result produced by said storage-size detection means indicates that the storage size of a free area left in said recording medium

is not large enough for storing said least recent first information signal in a process to record said first information signal onto said recording medium.

11. An information-signal process method comprising the steps of

detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

generating identification information for identifying a predetermined information signal of said first information signal on the basis of said detected information on characteristics of said first information signal; and

recording said first information signal in a first recording area of a recording medium and a second information signal in a second recording area of said recording medium wherein:

said first and second recording areas are set in accordance with a recording method determined in advance for said recording medium; and

said second information signal is said predetermined information signal identified by said identification information and located in a predetermined signal segment of said first information signal.

12. The information-signal process method according to claim 11 whereby a plurality of said first information signals is recorded in said first recording area having a variable storage size for accommodating said first information signals as a cluster of said first information signals and a plurality of said second information signals is recorded in said second recording area having a variable storage size for accommodating said second information signals as a cluster of said second information signals.

13. The information-signal process method according to claim 11 wherein said first recording area for recording only one piece of said first information signal and said second recording area for recording only one piece of said second information signal are provided, and said piece of said first information signal and said piece of said second information signal are recorded in said first and second recording areas, respectively.

14. The information-signal process method according to claim 11, further having the steps of:

receiving a selection input specifying a selected recording method;

setting said first and second recording areas in said recording medium in accordance with a selected

recording method specified by said selection input specifying said selected recording method; and

recording a first information signal in said first recording area and a second information signal in said second recording area.

15. The information-signal process method according to claim 14 wherein said selected recording method can be at least:

a first recording method of recording a plurality of said first information signals in said first recording area having a variable storage size for accommodating said first information signals as a cluster of said first information signals and a plurality of said second information signals in said second recording area having a variable storage size for accommodating said second information signals as a cluster of said second information signals; or

a second recording method of providing said first recording area for recording only one piece of said first information signal and said second recording area adjacent to said first recording area as an area for recording only one piece of said second information signal to form an alternating arrangement and recording said piece of said first information signal and said

piece of said second information signal in said first and second recording areas, respectively.

16. The information-signal process method according to any one of claims 11, 12, 13, 14 and 15, further having the steps of:

detecting the storage size of a free area left in said recording medium; and

executing control to record a most recent first information signal in a sub-area included in said first recording area as a sub-area for recording a least recent first information over said least recent first information without eroding said second recording area in case a detection result produced by said storage-size detection means indicates that the storage size of a free area left in said recording medium is not large enough for storing said least recent first information signal in a process to record said first information signal onto said recording medium.

17. An information-signal process apparatus comprising:

characteristic information detection means for detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

identification information generation means for generating identification information for identifying a predetermined information signal of said first information signal on the basis of a detection result produced by said characteristic information detection means;

identification information addition means for adding said identification information generated by said identification information generation means to said first information signal;

first recording means for recording said first information signal including said identification information added thereto by said identification information addition means onto a first recording medium;

storage-size detection means for detecting the storage size of a free area left in said first recording medium with a predetermined timing; and

second recording means for moving all data of one or more said first information signals from said first recording medium to a second recording medium and leaving an information signal, which is stored in a signal segment included in each of said moved first information signals and identified by said identification, in said first recording medium as a second information signal in

case a detection result produced by said storage-size detection means indicates that the storage size of a free area left in said recording medium is equal to or smaller than a predetermined value.

18. An information-signal process apparatus comprising:

characteristic information detection means for detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

identification information generation means for generating an identification information for identifying a predetermined information signal of said first information signal on the basis of a detection result produced by said characteristic information detection means;

first recording means for recording said first information signal onto a first recording medium along with a second information signal, which is said predetermined information signal identified by said identification information and included in said first information signal;

storage-size detection means for detecting the storage size of a free area left in said first recording

medium with a predetermined timing; and

second recording means for moving only one or more said first information signals from said first recording medium to a second recording medium in case a detection result produced by said storage-size detection means indicates that the storage size of a free area left in said recording medium is smaller than a predetermined value.

19. An information-signal process method comprising the steps of:

detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

generating identification information for identifying a predetermined information signal of said first information signal on the basis of said detected information on characteristics of said first information signal;

adding said generated identification to said first information signal;

recording said first information signal including said identification information added thereto onto a first recording medium;

detecting the storage size of a free area left in

said first recording medium with a predetermined timing; and

moving all data of one or more said first information signals from said first recording medium to a second recording medium and leaving an information signal, which is stored in a signal segment included in each of said moved first information signals and identified by said identification information, in said first recording medium as a second information signal in case a detection result indicates that the storage size of a free area left in said first recording medium is smaller than a predetermined value.

20. An information-signal process method comprising the steps of:

detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

generating identification information for identifying a predetermined information signal of said first information signal on the basis of said detected information on characteristics of said first information signal;

recording said first information signal onto a first recording medium along with a second information

signal, which is said predetermined information signal identified by said identification information and included in said first information signal;

detecting the storage size of a free area left in said first recording medium with a predetermined timing; and

moving only all or a portion of one or more said first information signals from said first recording medium to a second recording medium in case a detection result indicates that the storage size of a free area left in said first recording medium is smaller than a predetermined value.

21. An information-signal process apparatus comprising:

characteristic information detection means for detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

similar-picture-segment detection means for detecting a similar-picture segment of said first information signal on the basis of a detection result produced by said characteristic information detection means;

information-signal generation means for generating

a second information signal having an associative relation with a portion included in said first information signal at a position determined in advance in accordance with a detection result produced by said similar-picture-segment detection means;

associative-information generation means for generating associative information associating said first information signal with said second information signal time-wise or position-wise;

recording means for recording said first information signal, said second information signal generated by said information-signal generation means and said associative information generated by said associative-information generation means onto a recording medium; and

display control means for displaying pieces of information according to said second information signal on a display device in a chronological order in a tabular format.

22. The information-signal process apparatus according to claim 21, further having:

selection-input reception means for receiving a selection input of selecting at least one picture according to said second information signal displayed on

said display device in a tabular format; and

reproduction control means for reproducing said first information signal starting from a position corresponding to said picture selected by said selection input received by said selection-input reception means.

23. An information-signal process method comprising the steps of:

detecting information on characteristics of a first information signal to be recorded for each predetermined processing unit of said first information signal;

detecting a similar-picture segment of said first information signal on the basis of said detected information on characteristics of said first information signal;

generating a second information signal having an associative relation with a portion included in said first information signal from said first information signal located at a position determined in advance in accordance with said detected similar-picture segment;

generating associative information associating said first information signal with said second information signal time-wise or position-wise;

recording said first information signal, said second information signal and said associative

information onto a recording medium; and

displaying pieces of information according to said second information signal on a display device in a chronological order in a tabular format.

24. The information-signal process method according to claim 23, further having the steps of:

receiving a selection input of selecting at least one picture according to said second information signal displayed on said display device in a tabular format; and

reproducing said first information signal starting from a position corresponding to said picture selected by said received selection input.

25. An information-signal process apparatus for reproducing an information signal recorded onto a recording medium after completing processes of detecting characteristics of said information signal for each predetermined processing unit, classifying segments of said information signal into segments exhibiting similarity of said characteristics on the basis of said detected characteristics and adding identifications for identifying said classified segments to said information signal, said information-signal process apparatus comprising:

read means for reading out said information signal

recorded on said recording medium;

execution-command-input reception means for receiving a command input making a request for execution of a special reproduction process;

mode select means for selecting a special reproduction mode from a plurality of special reproduction modes on the basis of information on attributes added to said information signal to be reproduced from said recording medium or on the basis of a command input received from the user upon reception of a command input making a request for execution of a special reproduction process through said execution-command-input reception means; and

control means for controlling said read means to change a range of said information signal, which is to be read out from said recording medium, in accordance with said special reproduction mode selected by said mode select means.

26. An information-signal process method for reproducing an information signal recorded onto a recording medium after completing processes of detecting characteristics of said information signal for each predetermined processing unit and classifying segments of said information signal into segments exhibiting

similarity of said characteristics on the basis of said detected characteristics, said information-signal process method comprising the steps of:

receiving a command input making a request for execution of a special reproduction process;

selecting a special reproduction mode from a plurality of special reproduction modes on the basis of information on attributes added to said information signal to be reproduced from said recording medium or on the basis of a command input received from the user upon reception of a command input making a request for execution of a special reproduction process; and

executing control to change a range of said information signal, which is to be read out from said recording medium, in accordance with said selected special reproduction mode.

27. An information-signal process apparatus for reproducing an information signal recorded onto a recording medium after completing processes of detecting characteristics of said information signal for each predetermined processing unit, classifying segments of said information signal into similar-picture segments exhibiting similarity of said characteristics on the basis of said detected characteristics and adding

identifications for identifying said classified segments to said information signal, said information-signal process apparatus comprising:

execution-command-input reception means for receiving a command input making a request for execution of a special reproduction process;

read means for reading out said information signal being reproduced from said recording medium; and

reproduction control means for executing control to reproduce portions of each of said classified segments, which are read out by said read means from said recording medium as segments of said information signal, from said recording medium upon reception of said command input making a request for execution of a special reproduction process through said execution-command-input reception means, wherein said portions reproduced from said recording medium each have a length equal to a predetermined set segment length and are separated from each other by a predetermined interval segment length.

28. The information-signal process apparatus according to claim 27, further having important-segment detection means for detecting an important segment among segments included in said information signal as said segments exhibiting similarity of said characteristics,

wherein said reproduction control means sets such a reproduction segment that said reproduction segment has a length equal to said predetermined set segment length and includes said important segment detected by said important-segment detection means.

29. An information-signal process method for reproducing an information signal recorded onto a recording medium after completing processes of detecting characteristics of said information signal for each predetermined processing unit, classifying segments of said information signal into similar-picture segments exhibiting similarity of said characteristics on the basis of said detected characteristics and adding identifications for identifying said classified segments to said information signal, said information-signal process method comprising the steps of:

receiving a command input making a request for execution of a special reproduction process;

reading out said information signal being reproduced from said recording medium upon reception of said command input making a request for execution of a special reproduction process; and

executing control to reproduce portions of each of said classified segments, which are read out from said

recording medium as segments of said information signal, from said recording medium upon reception of said command input making a request for execution of a special reproduction process, wherein said portions reproduced from said recording medium each have a length equal to a predetermined set segment length and are separated from each other by a predetermined interval segment length.

30. The information-signal process method according to claim 29, further having the step of detecting an important segment among segments included in said information signal, whereby such a reproduction segment is set that said reproduction segment has a length equal to said predetermined set segment length and includes said detected important segment detected by said important-segment detection means.